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separated is vaporized. Generator I heats atungsten band cathode (Band Kathode). The output of this cathode is 10 to 20 volt, - J equal to 200 ampère.

The anode consists of a copper plate which is designed as first cellector electrode. The emission opening (Emissionsouffnung) consists of V Hastype steel and is rigidly incorporated into the anode plate, Electrodes II and III are also of V Hastype steel.

The emission slit has a height of 220 mm and a width of 12 to 14 mm. Electrode I is connected to 4 60 KV and electrode II is put to earth Electrode III is connected to a voltage of - 10 to 15 KV. Generator III furnishes the arc voltage (Bogenspannung). When fully ignited (durchgesuendeter Betrieb) the arc works under a voltage of about 100 V and 7 or 8 ampères. 170 Ohm inserted in the circuit of the arc serve as compensating resistance. These 170 Ohm are subdivided into two resistances, one having 100 and the other 70 0hm. When the arc is ignited, the 100-Ohm resistance is fully used. During "Durchzuendung" (?), the 100 Ohm resistance is short-circuited. Then the arc is ignited there is a current of up to 1 ampère at the intermediate potential. When the arc is "durchgezuendet" (fully ignited?) the intermediate potential current drops to 100 to 200 m A. The circuit of the intermediate potential is provided with a resistance of 250 Ohm. As the entire ion source is under a high tension potential of 4 60 KV, all the generators used were put on isolators. The same applies to all measuring instruments and resistances. The generators are controlled via dry-rectifyers which again are controlled by regulating transformers. As these transformers do not have separate isolating transformers, they are actuated by insulating rods; the same applies to the switching-in knobs used for the motors, The entire electric current required for the system is picked by an insulating transformer, which has a transformation ratio of 380 to 380 V "Wechsel (?)".

The insulation of the transformer is 60 to 70 KV and the transformer has an output of 25 KW.

- 7/2 The switching—in of the ion source takes place after the product to be separated has been deposited in the source and the chamber has reached the vaguum desired. The pressure in the source must have a vacuum of 3 x 10⁻² Torr when the arc is ignited. When the arc is "durchgezuendet", the pressure is at about 8 x 5 x 10⁻² Torr, and the pressure in the chamber is 5 x 10⁻⁵ Torr. Then the cathode and generator II used for the heating of the copper block are switched—in. After the vacuum has reached the value desired (3 x 10⁻²) the arc generator is activated and slowly excited. The emission takes place at about 250 V. Since this is not enough fully to ignite (durchzuenden?) the arc, a voltage of 450 to 500 V is applied. If the arc is not ignited at this temperature another cathode is used.
- 8. The high tension installation (70 KV, 300m A) is switched as a Greetz rectifier. The heating of the valves is controlled via a regulating transformer, the same applies to the anode transformer. I rhoostat each was installed in the separate filament current circuits in order to keep the filament current even. Unless the heating of the valves is switched—in, the anode voltage cannot be connected. The filter chain consists of three condensers, each of 0.25 µ V and provided with two throttles, each 100 H y 300 m A. The voltage of the tension installation is measured through a precision resistance in relation

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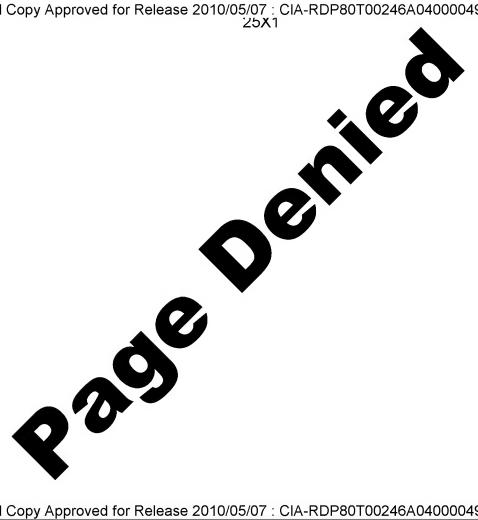
to earth pressure. As a protection against excess current, an overload relay was inserted; this device breaks the current in the event of excess current. The high tension installation is needed as a suction voltage device for electrods I. A resistance of 10 Kilo-Okm was installed as a protective resistance. The negative pole of the installation is grounded.

- 9. The high tension installation of 25 KV (full-wave rectification) is needed for collector electrode III of the isotope separator. For each condenser there is a filter chain 0.02 µ F (3 units) in addition to two throttles each with 10 H y = m A. The installation is protected by an overload relay. As with the 70 KV high tension installation, the anode voltage cannot be connected unless the heating of the valves is switched-in. The voltage of the 25 KV high tension plant is measured as indicated in paragraph 9 above.
- 10. The iron of the 25-ton magnet consists of Armco substitute, because Armco iron was not available in the GDR. The coils of the magnet ferb missing together from copper plates, and one coil weighs about one ton. The coils have 60,000 ampère windings and they are excited via a direct current generator which produces a voltage of 250 V ÷ 50 ampère. The generator is separately excited through a valve rectifier. The induction current is measured, and the same applies to the current and the voltage for the coils, which are water-cooled.

The coils are placed around the pole shoes of the magnet, and the deflection chamber is located between the pole shoes. No information was available on the Gauss value of the magnet, because the installation was not yet in operation. A piece of copper tubing 1.5 meters long connected the ion source and the deflection chamber. The ion source is installed in this copper tubing which is placed horizontally and which is connected to an oil diffusion pump of 3,000 liters capacity. Behind the suction chamber, at a point where the beam has already been deflected, there is a second copper tube which has an inclination of about 300 and is also about 1.5 meters long. The end of this tube mounts a collector with two pouches where the separated product is collected and measured, The inner diameter of the two copper tubes is 400 mm. For the measuring of the vacuum, a Philips-type discharge tube was inserted. The rough vacuum (Vorvakuum) was measured with a thermocouple. As forepump a rotating quadruple-oil pump with a capacity of 80 ccm was installed. A second such pump was installed for the production of the initial vacuum in the chamber. The magnet was excited via a regulating transformery detailed information was house

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separated is vaporized. Generator I heats a Wolfram-band cathode (Band Kathode). The output of this cathode is 10 to 20 wolt, - J equal to 200 ampère.

The anode consists of a copper plate which is designed as first collector electrode. The emission opening (Emissionsoeffnung) consists of V IIa-type steel and is rigidly incorporated into the anode plate. Electrodes II and III are also of V IIa-type steel.

The emission slit has a height of 220 mm and a width of 12 to 14 mm. Electrode I is connected to + 60 KV and electrode II is put to earth. Electrode III is connected to a voltage of - 10 to 15 KV. Generator III furnishes the arc voltage (Bogenspannung). When fully ignited (durchgesuendeter Betrieb) the arc works under a voltage of about 100 V and 7 or 8 ampères. 170 Ohm inserted in the circuit of the arc serve as compensating resistance. These 170 Chim are subdivided into two resistances, one having 100 and the other 70 0km. When the arc is ignited, the 100-0hm resistance is fully used. During "Durchsuendung" (?), the 100 Chm resistance is short-circuited. When the arc is ignited there is a current of up to 1 ampère at the intermediate potential. When the arc is "durchgemuendet" (fully ignited?) the intermediate potential current drops to 100 to 200 m A. The circuit of the intermediate potential is provided with a resistance of 250 Chm. As the entire ion source is under a high tension potential of 4 60 KV, all the generators used were put on isolators. The same applies to all measuring instruments and resistances. The generators are controlled via dry-rectifyers which again are controlled by regulating transformers. As these transformers do not have separate isolating transformers, they are actuated by insulating rods; the same applies to the switching-in knobs used for the motors. The entire electric current required for the system is picked by an insulating transformer, which has a transformation ratio of 380 to 380 V "Wechsel (?)".

The insulation of the transformer is 60 to 70 KV and the transformer has an output of 25 KW.

- 7. The switching-in of the ion source takes place after the product to be separated has been deposited in the source and the chamber has reached the vaguum desired. The pressure in the source must have a vacuum of 3 x 10⁻² Torr when the arc is ignited. When the arc is "durchgesuendet", the pressure is at about 8 x 5 x 10⁻³ Torr, and the pressure in the chamber is 5 x 10⁻³ Torr. Then the cathode and generator II used for the heating of the copper block are switched-in. After the vacuum has reached the value desired (3 x 10⁻²) the arc generator is activated and slowly excited. The emission takes place at about 250 V. Since this is not enough fully to ignite (durchzuenden?) the arc, a voltage of 450 to 500 V is applied. If the arc is not ignited at this temperature another cathode is used.
- 8. The high tension installation (70 KV, 300 m A) is switched as a Graets rectifyer. The heating of the valves is controlled via a regulating transformer, the same applies to the anode transformer. A rheostat each was installed in the separate filament current circuits in order to keep the filament current even. Unless the heating of the valves is switched—in, the anode voltage cannot be connected. The filter chain consists of three condensors, each of 0.25 μ V and provided with two throttles, each 100 H y 300 m A. The voltage of the high tension installation is measured through a precision resistance in relation

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to earth pressure. As a protection against excess current an overload relay was inserted and this device breaks the current in the event of excess current. The high tension installation is needed as a suction voltage device for electrode I. A resistance of 10 Kilo-Ohm was installed as a protective resistance. The negative pole of the installation is grounded.

- 9. The high tension installation of 25 KV (full-wave rectification) is needed for collector electrode III of the isotope separator. For each condensor there is a filter chain 0.02 μ F (3 units) in addition to two throttles each with 10 H y = m A. The installation is protected by an overload relay. As with the 70 KV high tension installation, the anode voltage cannot be connected unless the heating of the valves is switched-in. The voltage of the 25 KV high tension plant is measured as indicated in paragraph 9 above.
- 10. The iron of the 25-ton magnet consists of Armko substitute, because Armko iron was not available in the GDR. The coiles of the magnet together from copper plates, and one coil weighs about one ton. The coils have 60,000 ampère windings and they are excited via a direct current generator which produces a voltage of 250 V ± 50 ampère. The generator is separately excited through a valve rectifyer. The induction current is measured, and the same applies to the current and the voltage for the coils which are water-cooled.

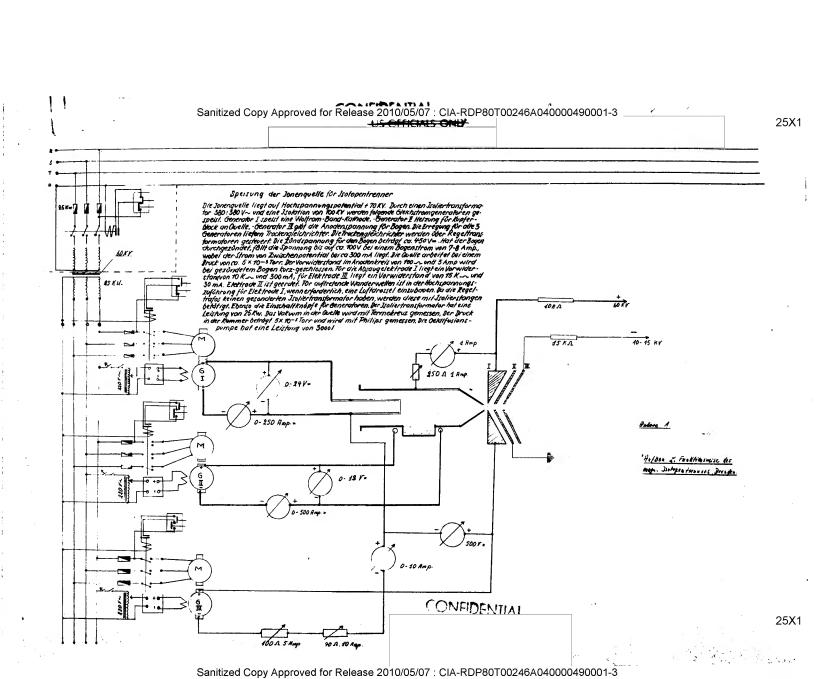
The coils are placed round the pole shoes of the magnet, and the deflection chamber is located between the pole shoes. No information was available on the Gauss value of the magnet, because the installation was not yet in operation. A piece of copper tubing 1.5 meters long connected the ion source and the deflection chamber. The ion source is installed in this copper tubing which is placed horizontally and which is connected to an oil diffusion pump of 3,000 liters capacity. Behind the suction chamber, at a point where the beam has already been deflected, there is a second copper tube which has an inclination of about 300 and is also about 1.5 meters long. The end of this tube mounts a collector with two pouches where the separated product is collected and measured. The inner diameter of the two copper tubes is 400 mm. For the measuring of the vacuum, a Philips-type discharge tube was inserted. The roughvacuum (Vorvakuum) was measured with a thermoccupie. As forepump a rotating quadruple-oil pump with a capacity of 80 ccm was installed. A second such pump was installed for the production of the initial vacuum in the chamber. The magnet was excited via a regulating transformer; detailed information was, however, not available.

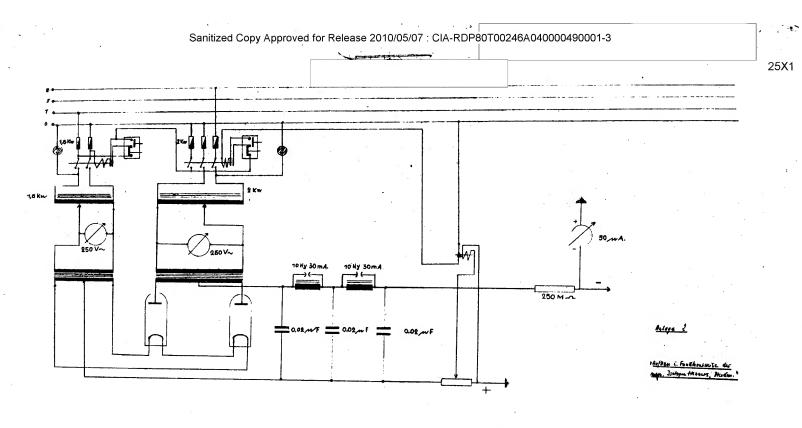
a magnetic isotope separator was allegedly also under construction at an undetermined institute in Leipzig. the magnetic isotope separator was under construction in Dresden.

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Comment. For sketches of the isotope separator in Dresden, see amount 1 through 4.

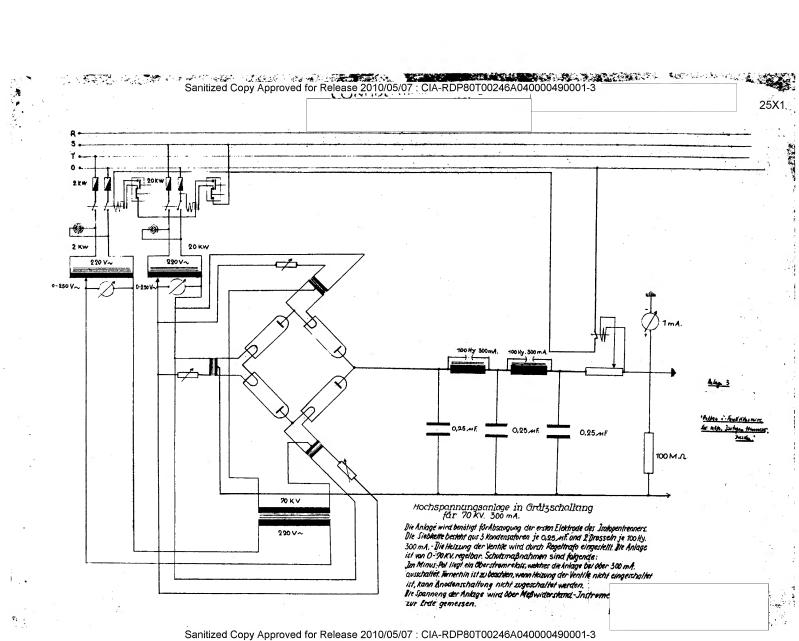
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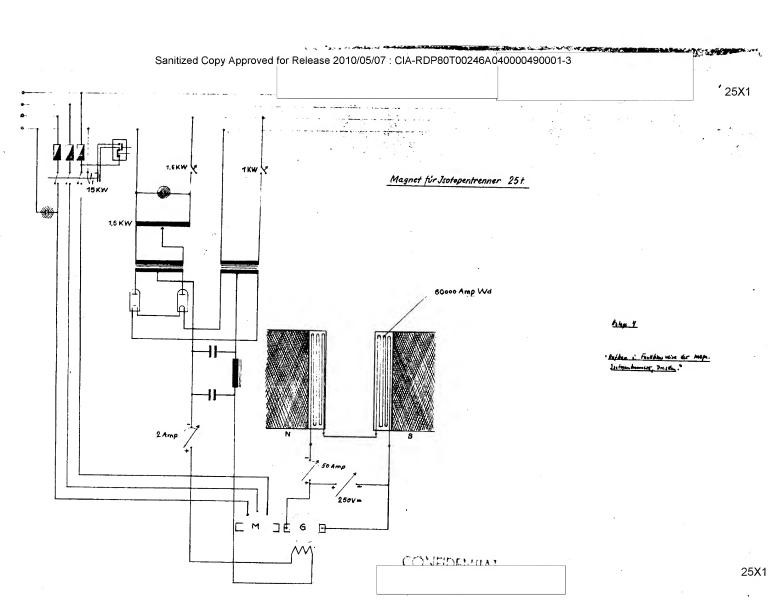




Hochspannungsanlage 25 KV Die Hochspannungsanlage Bopoelweg-Gleichrichtung wird pentitht für die Abstugelektrode B die Jimpoentrenners. Die Stebkelle beträgt fe Kondensator O.oz., if (35 tock) und Diasseln je 10 My-mil. Jit kniege ist strömmäßig durch Diesströmre talle abget ichert. - Zu beachten (ist, wenn Heizung der Ventille nicht eingeschafter ist, kunn die Anodenspannung nicht zugeschafter werden, Die Spannung der Hochspannungssenlage wird über Meßwiderstand-Instrument zur Erde gemassen,

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